Priority Research Focus
Veterinary Public Health
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Comparison of animal health, production and fertility parameters in Swiss dairy farms before and after the eradication of Bovine Virus Diarrhoea : a matched case-control study

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Introduction

Since 2008, an obligatory eradication programme (**EP**) for Bovine Virus Diarrhoea (**BVD**) was run in Switzerland. Between 2008 and 2012, the prevalence of persistently infected (**PI**) newborn calves in the population decreased from 1.4% to <0.1%.

The aim of this study was to assess the effects of BVD eradication on different parameters of animal health, production and fertility in Swiss dairy herds.

Material and Methods

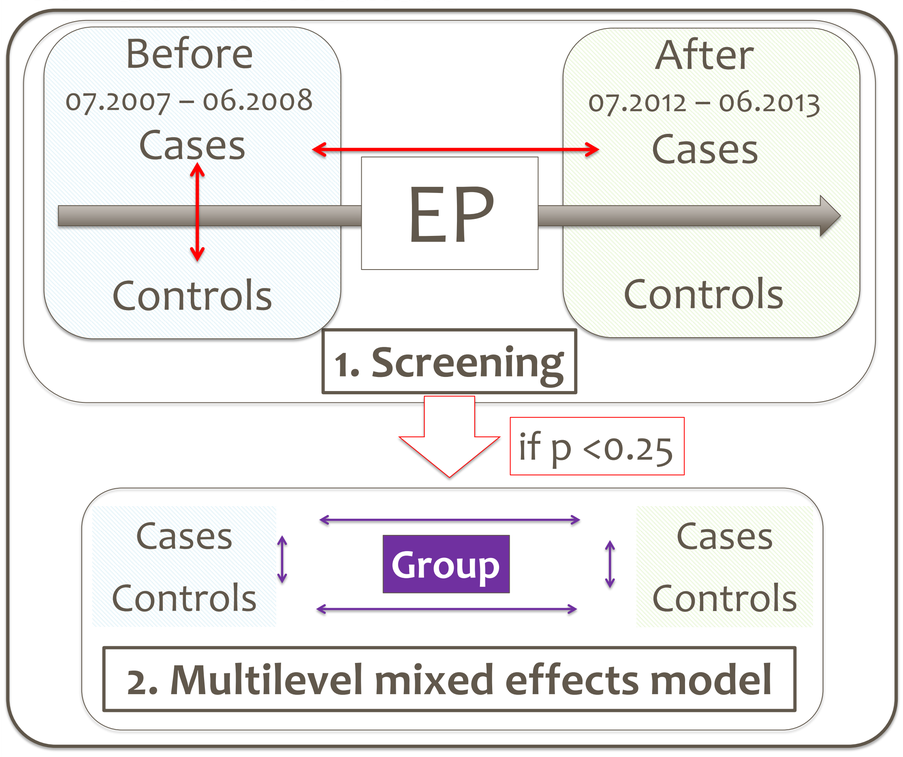

Figure 1. Matched case-control study with 55 pairs.

Definitions:

- Cases: at least 2 PI-animals detected before or during EP, all PI were culled before 01.01.2010;
- Controls: no PI-animal before or during EP;
- With the help of the case herds' private veterinarians, matched by geographical region, number of cows and use of alpine pasture (yes/no).

Multilevel mixed effects models developed for:

- Geometric mean of the bulk milk somatic cell count (**BMSCC**)
- Prevalence of subclinical mastitis (**SCM**)
- Non return rate (**NRR**)
- Daily milk yield (**MY**) even without any p-value <0.25, was also analysed because of significant results in previous studies.

As main parameter of interest, the interaction between case-control and period (**Group**) forced into all models.

Results

Group was significant for all parameters, except for MY.

Before the EP, a higher NRR was measured in case herds (p=0.005). The NRR remained stable in case herds after EP, whereas it improved significantly in control herds (β=0.29, p=0.019).

For all milk parameters (BMSCC, SCM and MY), control herds had better results in both periods. Case and control herds showed an improvement after EP.

Even though Group was not significant (p=0.27), after EP case herds tended to have a higher MY (p=0.05, Figure 3).

Control herds significantly decreased their BMSCC after EP (β=0.14, p<0.001, Figure 2).

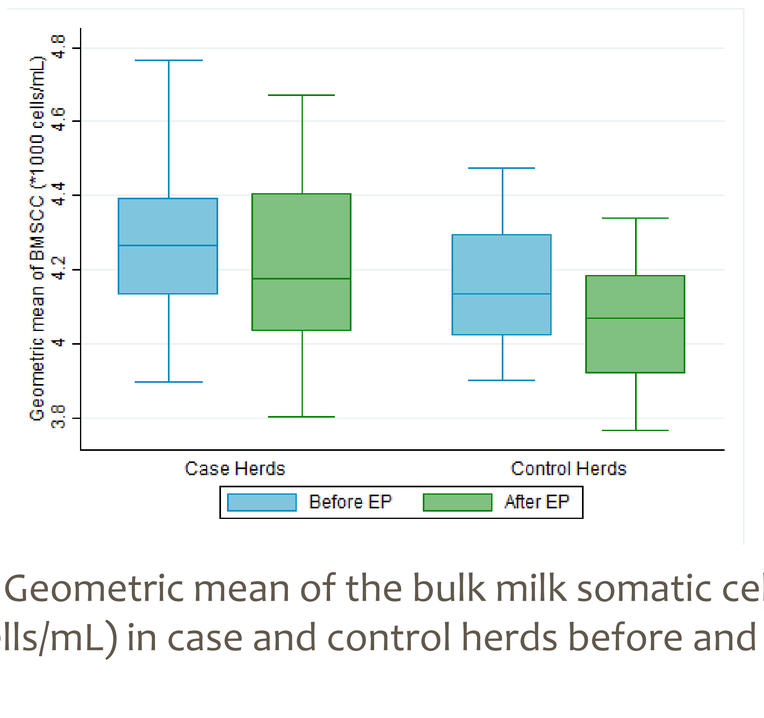

Figure 2. Geometric mean of the bulk milk somatic cell counts (*1000 cells/mL) in case and control herds before and after EP

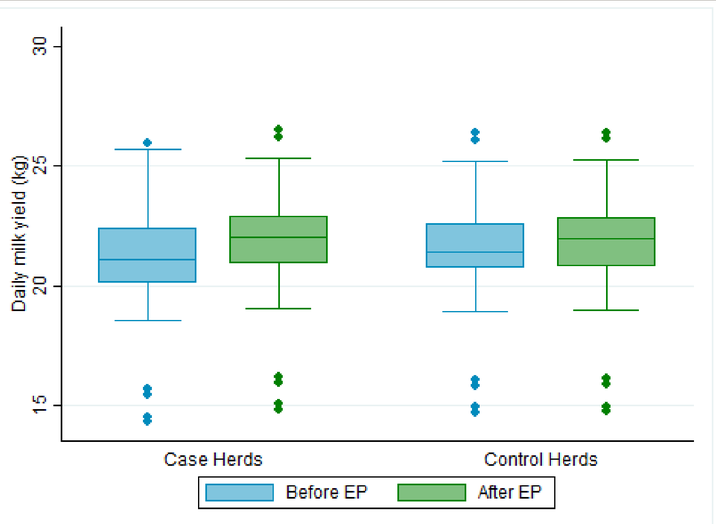

Figure 3 –Daily milk yield (kg) in case and control herds before and after EP

Conclusion

The few improvements found for fertility, production or udder health parameters in this study highlight the limitations of a retrospective design to analyse the effects of BVD eradication. Nevertheless, **72.7%** of the participants considered that BVD eradication had been necessary.

These data and results will serve as a basis for a cost-benefit analysis of the BVD eradication in Switzerland.

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